

ABSTRACT

**TITLE: IDENTIFICATION, CHARACTERISATION AND
ANTIMICROBIAL RESISTANCE PATTERN OF NON FERMENTING
GRAM NEGATIVE BACILLI FROM VARIOUS CLINICAL ISOLATES**

INTRODUCTION

The Nonfermentative gram-negative bacilli are a group of aerobic, non-sporing bacilli that do not either use carbohydrates as a source of energy or degrade them through metabolic pathways other than fermentation. Non-fermentative gram negative bacilli account for $\geq 15\%$ of isolates from most clinical specimens¹ Hospital acquired infections in the acute care units are major threat to patient safety.

AIM

To identify, characterise and detect antimicrobial resistance pattern of non fermenting gram negative bacilli from various clinical isolates.

OBJECTIVES

1. To isolate and speciate the nonfermenting Gram negative bacilli.
2. To characterise the non-fermenting Gram negative bacilli isolated.
3. To find out the antimicrobial resistance pattern of the non-fermenting Gram negative bacilli isolated.
4. To detect the production of extended spectrum of betalactamases and metallo betalactamases (MBL).
5. To identify the genes responsible for acquired MBL production

MATERIALS AND METHODS

The study was conducted in the Department of Microbiology, Kilpauk medical college and hospital, Chennai from January 2015 to January 2016. Nonfermenting gram negative bacilli were identified using standard identification methods. The antibiotic susceptibility testing was done by Kirby-Bauer disc diffusion method and interpreted according to CLSI guidelines, 2016. MIC for Imipenem were determined by E Test (MIC strip method). The specific Imipenem-resistant genotype Bla IMP and Bla VIM were determined by polymerase chain reaction (PCR).

RESULT

In our study, 200 nonfermenting gram negative bacilli were isolated from various clinical samples. Maximum samples were obtained from pus samples especially from Burns ward and the maximum risk factors associated are Diabetes Mellitus. Most predominant organism is *Pseudomonas aeruginosa* followed by *Acinetobacter baumannii*. *Pseudomonas aeruginosa* and *Acinetobacter baumannii* shows higher sensitivity to Piperacillin tazobactam and Imipenem. In *Pseudomonas aeruginosa*, *Acinetobacter baumannii* ESBL producers, MBL producers and AmpC producers were seen. MBL-positive isolates were confirmed to be positive for the gene BlaVIM and no Bla IMP.

CONCLUSION

The present study showed emerging resistance of non fermenting gram negative bacilli, that can be controlled by strict enforcement of antibiotic policy along with strict infection control measures to prevent further emergence and spread of antibiotic resistance.

Keywords: Non fermenting gram negative bacilli, Antibiotic susceptibility pattern, Imipenem Resistant *Pseudomonas*.